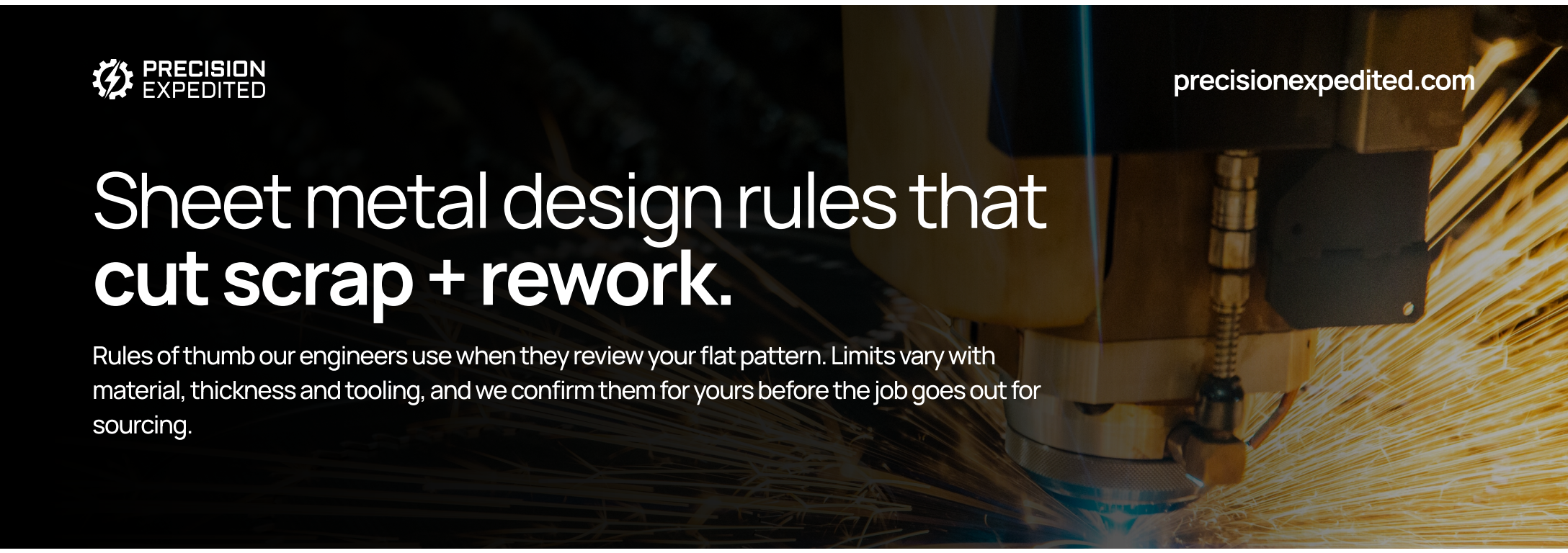
SHEET METAL DESIGN GUIDE



PRECISION EXPEDITED

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Sheet metal design rules that **cut scrap + rework.**

Rules of thumb our engineers use when they review your flat pattern. Limits vary with material, thickness and tooling, and we confirm them for yours before the job goes out for sourcing.

Design Breaks a Rule?

Send it anyway. Tight flanges and close holes aren't automatic no's. Our engineers review every flat pattern, flag what drives cost, and tell you what a change in radius, relief or hole location would save.

Bends + Flanges

Where most sheet metal scrap starts.

- **Bend radius** · At least 1x material thickness
- **Consistent radii** · One radius per part where you can
- **Flange length** · At least 4x material thickness
- **Bend relief** · Width at least 1x thickness
- **Gauges** · Standard thicknesses quote faster
- **Grain direction** · Bend across it on harder alloys
- **Tolerance** · ±0.005" cut, ±0.015" across bends

Holes + Hardware

- **Hole diameter:** At least 1x material thickness
- **Hole to bend:** 2.5x thickness plus bend radius
- **Hole to edge:** At least 2x thickness
- **PEM hardware:** Match to sheet thickness + edge distance
- **Welds:** Leave access, plan for distortion
- **Finish:** Call coating thickness on mating fits

Why It Matters

A radius tighter than the material allows cracks on the outside of the bend. Holes too close to a bend stretch into ovals. Hardware called for the wrong gauge won't seat. Every one of these is cheaper to catch on the drawing than on the brake.

Quality + Compliance

- ISO 9001:2015
- AS9100D Compliant
- ITAR Registered
- NIST 800-171 Compliant
- Hardware insertion in-program
- Inspection before shipment
- ISO 13485 Compliant

Built Fast. Built Right.

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